

Remarks

Applicants thank the Examiner for responding to Applicants' arguments filed on May 20, 2003. Claims 1-24 are pending.

Rejections under 35 U.S.C. § 103(a)

The Examiner rejected claims 1-24 under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) in view of Vyoda et al. (U.S. Pub. 2002/0105057) and Yoon (U.S. Pub. 2002/0090784). Applicants respectfully traverse and submit that the references teach away from the claims recited in the specification. Thus, for the reasons stated below, Applicants respectfully request allowance of pending claims 1-24.

Specifically, independent claims 1, 9, 17 and 24 recite methods for cleaning a semiconductor wafer having a *low K dielectric layer*. Applicants disclose that low K dielectrics are hydrophobic because they are engineered to have a very low dielectric constant (specification at page 3, lines 16-17 and page 9, lines 21-24). Further, because the low K dielectric layer is hydrophobic, conventional water and other aqueous cleaning fluids are repelled during the cleaning process of the low K dielectric layer (see specification at page 10, lines 1-3). Applicants then disclose that during the cleaning process, a wetting agent in combination with a cleaning chemistry enable the cleaning of hydrophobic surfaces (see specification at page 12, lines 6-9). Thus, independent claims 1, 9, 17, and 24 recite "scrubbing the low K dielectric layer" with a combination of "a cleaning chemistry and wetting agent."

In contrast, Yoon (U.S. Pub. 2002/0090784) teaches a method for manufacturing a semiconductor device with no reference to a *low K dielectric layer*. Further, Vyoda et al. (U.S. Pub. 2002/0105057) teaches that dielectric layers are *hydrophilic* (see Vyoda et al. at

page 2, paragraph 0020). Particularly, "... the *hydrophilic state of the dielectric* [emphasis added] counterbalances the hydrophobic state of the semiconductor so that the surface of wafer 10 attracts enough water to wet during a wet clean (Vyoda et al. at 2, paragraph 0023)." Thus, Vyoda et al. cannot motive one of ordinary skill in the art to enable a process to clean *hydrophobic low K dielectric layers*. Because Vyoda et al. does not teach one of ordinary skill in the art regarding hydrophobic low K dielectric layers, the combination of Vyoda et al. and Yoon cannot provide the motivation to one of ordinary skill in the art to combine a cleaning chemistry and a wetting agent to clean a hydrophobic low K dielectric layer.

Referring to dependent claims 2-8, 10-16 and 18-23, Applicants respectfully submit that the dependent claims are allowable for the same reasons stated above. Thus, Applicants respectfully request the withdrawal of the rejection based on 35 U.S.C. § 103(a) and the issuance of a notice of allowance.

If the Examiner has any questions, please contact the undersigned at (408) 749-6900, ext. 6911. Further, if any fees are due in connection with filing this amendment, the Commissioner is authorized to charge Deposit Account No. 50-0805 (Order No. LAM2P316). A copy of the transmittal is enclosed for this purpose.

Respectfully submitted,
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